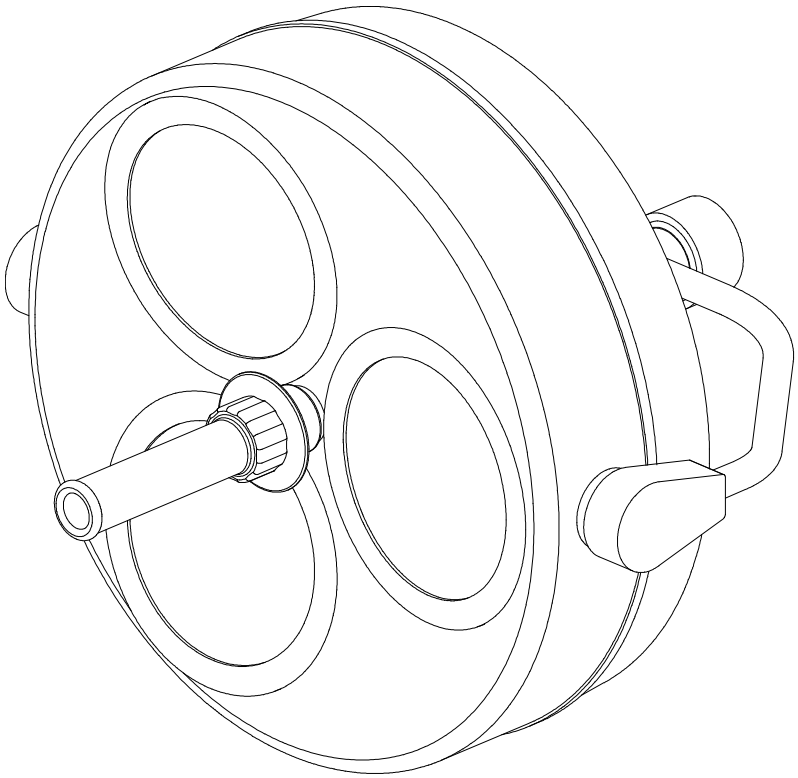
DIRECTIONS FOR USE

Triaflex



Stand lamp _____ **Order No. 3001 1012 00**
Wall lamp _____ **Order No. 3001 1021 00**
Single ceiling lamp_____ **Order No. 3001 1031 25**
Order No. 3001 1031 30
Ceiling lamps combinations
Emergency power lamp_____ **Order No. 3001 1015 00**

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List of contents

1. Safety instructions ..... Page 3

2. Operating the lamp Triaflex R86 ..... Page 4
   2.1 ON/OFF switch, light intensity adjustment ..... Page 4
   2.2 Positioning ..... Page 5
   2.3 Lightfield adjustment (merging of lightfields) ..... Page 7

3. Cleaning ..... Page 8
   3.1 Sterilisable handle ..... Page 8
   3.2 Lamp head, splinter protection disk ..... Page 10

4. Maintenance ..... Page 11
   4.1 Adjustments at the ceiling-/wall attachment ..... Page 11
   4.2 Adjustments at the stand ..... Page 12
   4.3 Adjustments at the lamp head ..... Page 12
   4.4 Changing of spare parts ..... Page 13
      4.4.1 Changing the halogen bulbs ..... Page 13
      4.4.2 Changing the fuses ..... Page 14
      4.4.3 Changing the filter disk ..... Page 15
      4.4.4 Changing the splinter protection disk ..... Page 15

5. Data ..... Page 16
   5.1 Technical data ..... Page 16
   5.2 Wiring ..... Page 17
   5.3 Environmental conditions ..... Page 18

6. Marking ..... Page 18
   6.1 Specification of bulb ..... Page 18
   6.2 Specification of fuse ..... Page 19
   6.3 CE-mark ..... Page 19

7. Disposal ..... Page 19

8. Spare parts ..... Page 20
   8.1 Lamp head ..... Page 20
      (Ceiling- /wall- /stand model, emergency power lamp)
   8.2 Swivel arm – stand model ..... Page 21
   8.3 Spare part list ..... Page 22

Dear customer!

Please read the safety instructions and product description carefully before working with these lights for the first time.

Please follow the separate mounting instructions for ceiling- and wall-mounted lamps, and for fitting the stand foot and stand tube.

1. Safety instructions

Please pay attention to the directions for use when handling the lamp.

Attention:

This device is not suitable for use in hazardous locations.
The lamp is classified as a Group 1 device according to the Regulations for EEMP.

Repairs to the lamp and special installation work on the reflector or plug-in socket should only be carried out by ourselves or a company expressly authorized by ourselves.

The manufacturer is only responsible for the safety of the lamp if repairs and alterations have been carried out by themselves or a company who can guarantee that the safety regulations have been observed.

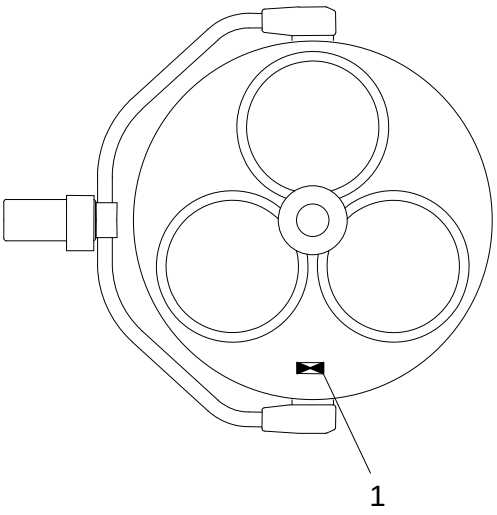
The manufacturer is not liable for personal or material damages if the lamp is misappropriately or incorrectly operated or misused.

Make sure that the lamp is in perfect working order before use.

2. Operating the lamp Triaflex

The dielectric filter disk between reflector and splinter protection disk prevents a damaging heating of the illuminated area.

The lamp may not be used without the dielectric filter disk.

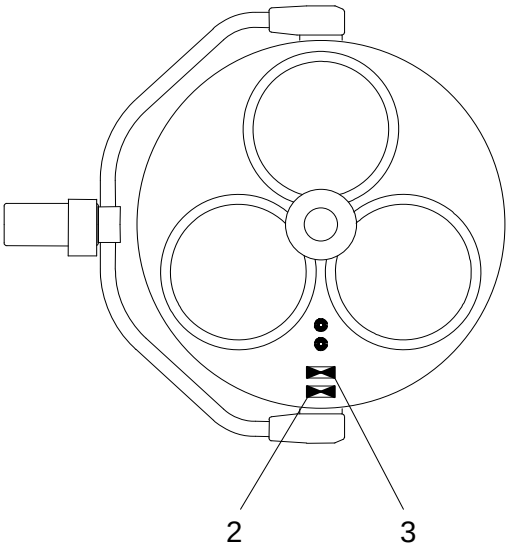


2.1 ON/OFF switch, light intensity adjustment

- **Design for power supply 24V (fig. A) Ceiling-/wall model, emergency power lamp**

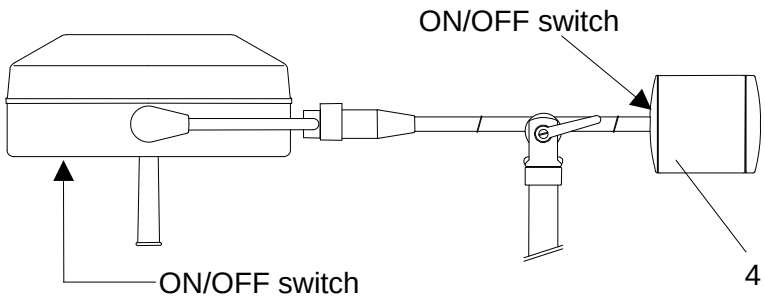
The rocker switch **1** switches the lamp ON and OFF.
Additional to the rocker switch **1** the customer must provide a two-pole **ON/OFF** switch.

Remark: In case of Triaflex R86 lamps for power supply 24V there is no two-step light intensity adjustment.



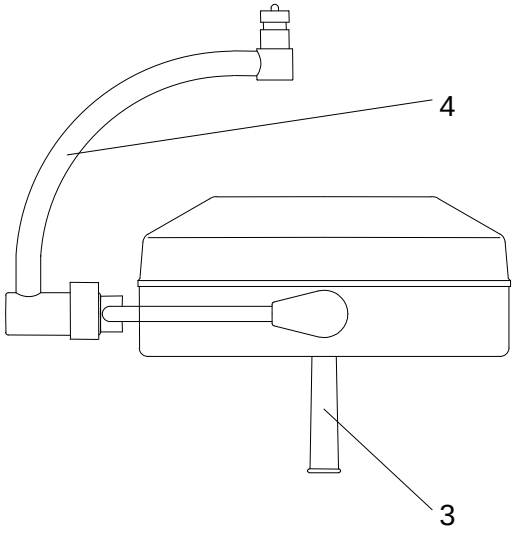
- **Design for power supply 230/120V AC Built in toroid transformer (fig. B) Ceiling-/wall model**

The rocker switch **2** switches the lamp ON and OFF.
The rocker switch **3** adjusts the light intensity from strong to weak.



- **Stand model (fig. C)**

The lamp is equipped with two **ON/OFF** switches.
The switches are positioned on the lamp head and on the counter balance **4**.



2.2 Positioning

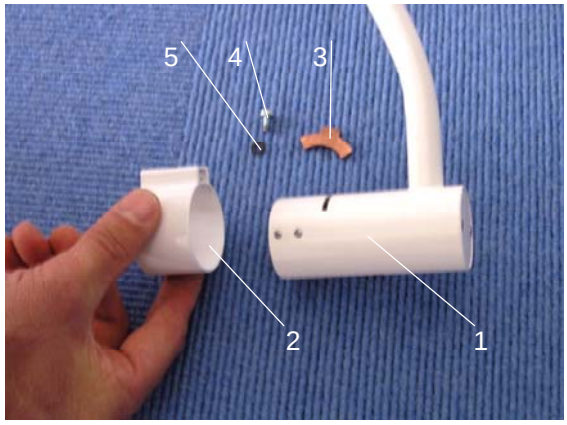
♦ Ceiling-/wall model

For positioning use sterilisable handle **3**.

The cardan bow **4** is used for convenient, fully cardanic adjustment of the lamp.

It is available as extra accessory.
It is only applicable in ceiling- and wall models. For stand models this bow is not necessary.

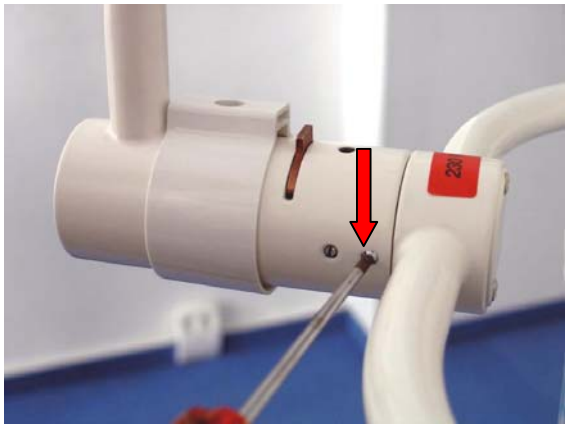
♦ Full cardanic suspension (surcharge) Mounting the cardan bow



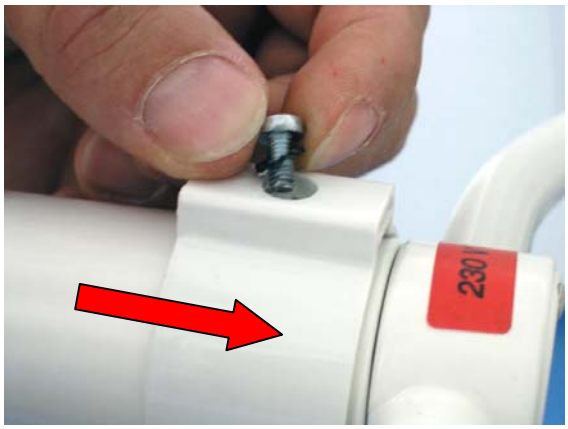
Mounting overview
Pos. 1 – Cardan bow;
Pos. 2 – Securing sleeve;
Pos. 3 – Securing segment;
Pos. 4 – Securing screw M4x10 DIN 7985;
Pos. 5 – Serrated lock washer A4,3 DIN 6798

- Slide the securing sleeve p**os. 2** onto the cardan bow p**os. 1**.
- Insert the coupling journal of the lamp bow into the receptacle of the cardan bow **pos. 1**.

- Insert the securing segment **pos. 3**.

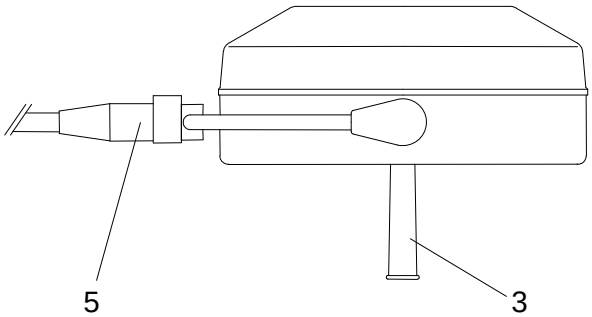


- Tighten the four brake screws very carefully with a slotted screw driver.



- Slide the securing sleeve **pos. 2** forwards and fix it with the securing screw **pos. 4** and the serrated lock washer **pos. 5**.

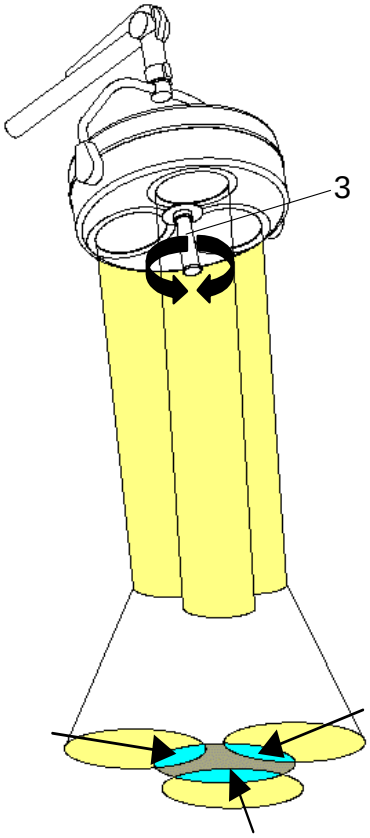
Check the easy-going movement of the lamp.



♦ **Stand model, emergency power lamp**

For positioning use sterilisable handle **3**.

For stand models, the bow of the lamp body is directly coupled to the bracket **5**.



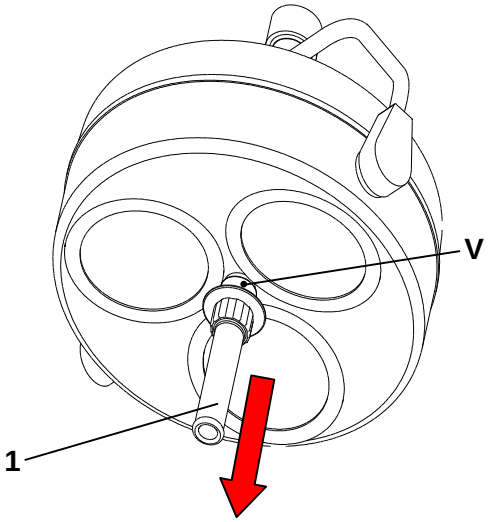
2.3 Lightfield adjustment Merging of light fields (available as accessory)

The lamps Triaflex R86 offer the function of light-field adjustment (merging of lightfields) as extra accessory.

That means, you can merge the separated lightfields to one spot as shown in the figure.

To activate the merging of lightfields turn the sterilisable handle **3**.

3. Cleaning



3.1 Sterilisable handle

At delivery the lamp is equipped with the **handle sleeve 1**. The handle sleeve is removable and sterilisable. Before using the first time and before every use the handle sleeve must be cleaned, disinfected and sterilised.

The handle sleeve must be removed for sterilisation:

- To remove press the **lock V** and pull off the sterilisable handle sleeve **1** while keeping the lock pressed.
- To attach, push on and slightly twist the handle until the **lock V** engages securely.

Handles often become unsterile during an OP; therefore always keep additional handles available for exchange.

Cleaning / disinfection and sterilisation

Basics
Efficient cleaning / disinfection is an essential requirement for effective sterilisation of the handle.
Within the scope of responsibility for the sterility of the products it should be noted that only sufficiently validated equipment and product specific processes are used for cleaning / disinfection and that the validated parameters are complied with in every cycle.
In addition, the hospital / clinic hygiene regulations must be observed.

Cleaning / disinfection
Cleaning and disinfection must be carried out immediately after use.
A mechanised process (disinfector) should be used for cleaning / disinfection. The efficiency of the process used must be recognised and validated in principle (e.g. listed under disinfectants and disinfection procedures tested and recognised by Robert-Koch-Institute / DGHM).
When using other procedures (e.g. a manual procedure), proof and process efficiency in principle must be provided within the scope of validation.
Proof in principle of the suitability of the handles for efficient cleaning / disinfection was provided using a cyclic cleaning system (Netsch-Bellmed T-600-IUDT/AN, programme 2 for small parts; code B).

It is not allowed to use agents / disinfectants, which contain the following substances, as these may cause changes in the material:

- High-concentration organic and inorganic acids
- Chlorinated hydrocarbons
- 2-ethoxyethanol

When cleaning / disinfecting, the following procedures must be followed:

	Process	**Time (sec.)**
Zone 1	Pre-rinse, external, cold, 10 – 15°C Washing, acidic, external 35°C Draining time Re-rinse, external approx. 80°C Draining time Re-rinse, external approx. 80°C Draining time	45 120 10 *10 *15 *15 15
Zone 2	Washing, alkaline, external, 93°C Draining time Re-rinse, external, acidic, 90°C Draining time Re-rinse, external 90°C Draining time	135 10 10 15 15 15
Zone 3	Drying, external 100 – 120°C	200
Zone 4	Drying, external 100 – 120°C	200
	Door open / close & transport (sluice discharge)	60
	Cycle time overall ca.	290 ≈ 5 minutes

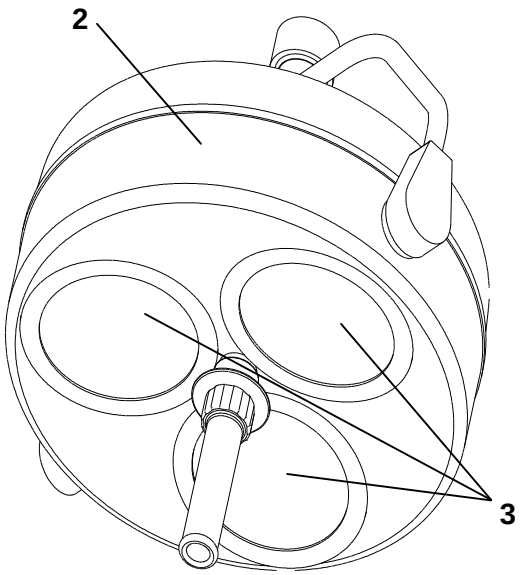
* When occupying the disinfection zone (washing zone 2), the re-rinse and draining times will depend on the respective objects being washed therein!

Sterilisation
Only previously cleaned and disinfected handles may be sterilised.
The handles are placed in a suitable sterilisation pack (one-way sterilisation pack, e.g. foil / paper sterilisation bags, single or double pack) in accordance with DIN EN 868 / ISO 11607 for steam sterilisation and then sterilised.
Use only the sterilisation procedure listed below for sterilisation. Other sterilisation procedures (e.g. ethylene oxide, formaldehyde and low-temperature plasma sterilisation) are not permissible.

Steam sterilisation procedure
Validated in accordance with DIN EN 554/ISO 11134
Maximum sterilisation temperature 134°C

Proof in principle of the handles' suitability for effective sterilisation was provided using a fractional vacuum process (Euroselectomat 666 by MMM Münchner Medizin Mechanik GmbH, sterilising temperature 134°C, holding time 7 min.)

Inspection / durability
The handles should be inspected for damage and changed before re-use, if required.
The handles may be cleaned / disinfected, sterilised and re-used for a maximum of 1000 times. If the handles are re-used more than 1000 times, then this will be the responsibility of the hospital / clinic.



3.2 Lamp head, splinter protection disk

The lamp head **2** has a high-quality surface, which can be cleaned with conventional cleaning agents.

The splinter protection disks **3** are made of a high-quality plastic. Pay attention to the following during cleaning:

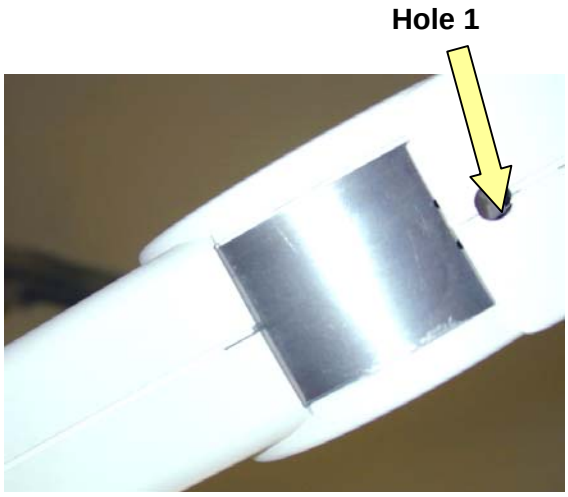
- Wipe the splinter protection disks **3** always with a wet cloth. **Do not wipe dry!**
- Only use disinfectant with less than 20% alcohol.

Wipe the splinter protection disks **3** after cleaning with an antistatic, non-fluffy cloth.

Alc. ≤ 20 %

4. Maintenance

The lamp has been designed and built so that regular maintenance intervals are not necessary.
In order to keep the system easy running throughout its life span, we recommend that the hinges be greased once a year with an acid free grease.

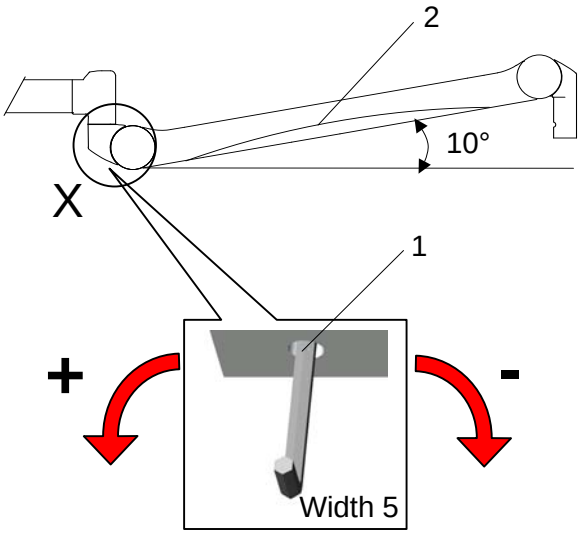


4.1 Adjustments at the ceiling / wall attachment

♦ **Adjusting the spring arm**

Note:
Maximum additional load at spring arms: Spring arms are equipped with different springs to compensate the lamp / device weight.

To adjust the spring force make sure that the spring arm with the lamp / device can come to rest in any desired position.

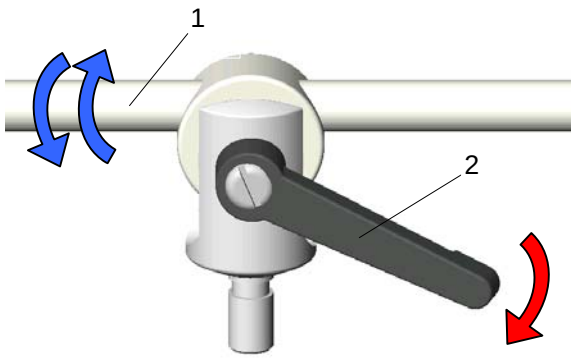


- A hole **1** is located at the position marked by detail **X**.
- Position the spring arm **2** with the lamp / device approximately 10° above horizontal.
- Insert Allan key (width 5, included in the scope of supply) into the hole **1**.

If the spring arm drops, the spring force is too low:
- Rotate the adjustment screw to the **left** (counter clockwise) in the **+** direction.

If the spring arm rises, the spring force is too high:
- Rotate the adjustment screw to the **right** (clockwise) in the **-** direction.

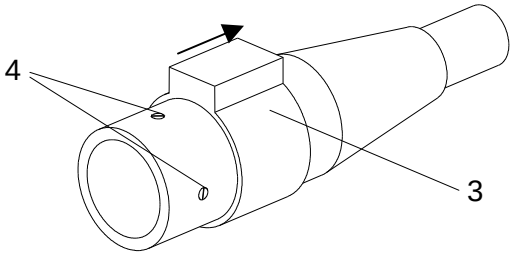
If the spring arm with the lamp / device cannot come to rest in any desired position after the spring force has been adjusted, the springs must be replaced by a service technician.



4.2 Adjustments at the stand

♦ Swivel arm

You can fasten the move of the swivel arm **1** by adjusting lever **2**.

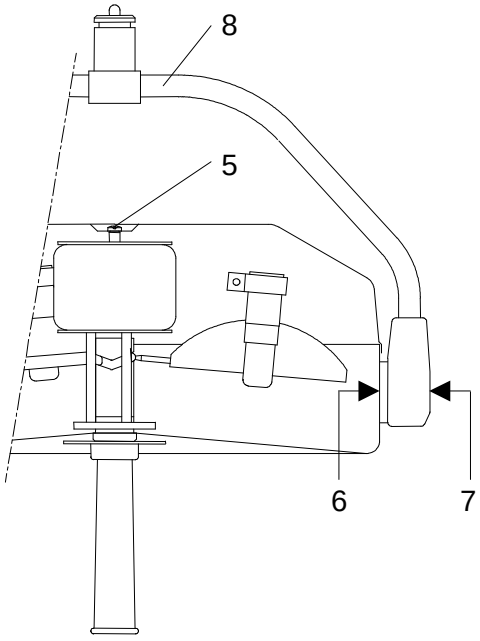


♦ Adjusting the brake pins

Push the sliding sleeve **3** backwards as shown in the figure.
Tighten the brake pins **4** M4 using a screwdriver (turn clockwise).

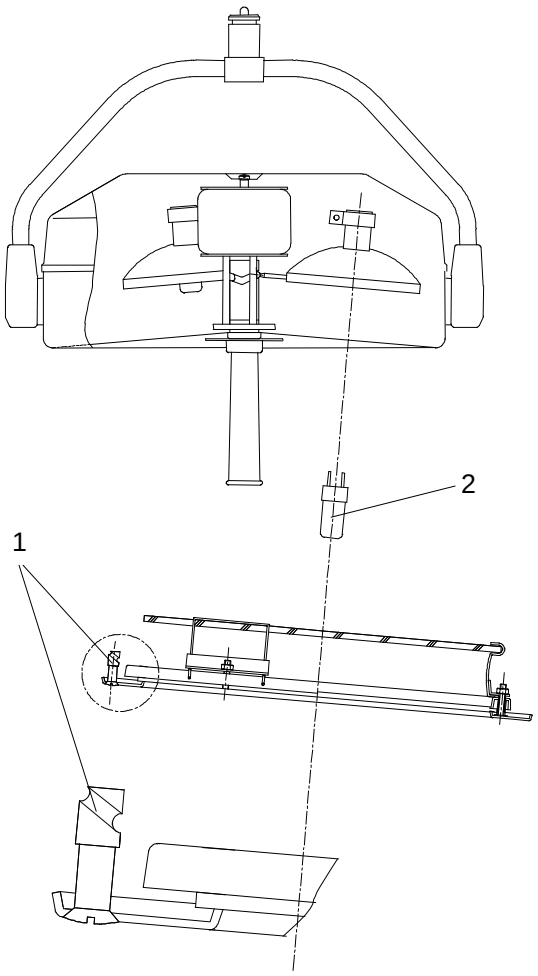
4.3 Adjustments at the lamp head

♦ Adjusting the lamp bow



In case you notice that the lamp no longer remains at its set position, it may be necessary to adjust the lamp bow **8**.

- Turn off the lamp.
- Unscrew the raised countersunk screw **5** using a cross screwdriver.
- Remove the upper part of the lamp housing.
- Screw the nuts **6** on both sides a little tighter, using an open-ended or ring wrench SW14, or loosen these nuts, while at the same time holding the screw slot **7** in each case with a screwdriver.
- Put the upper part of the lamp housing back on the lower part of the lamp housing.
- Fix the upper part of the lamp housing with the raised countersunk screw **5**.



4.4 Changing of spare parts

4.4.1 Changing the halogen bulbs

Dr. Mach uses special halogen bulbs as illuminants.

Only original Dr. Mach spare bulbs may be used.
The use of other bulbs can lead to a considerable reduction of light power and increase in the thermal load.

- Turn off the lamp.
- Rotate the three quick-release fasteners **1** half a turn anticlockwise so that the corresponding disk bearer can be removed from the bottom part of the lamp housing.
- Carefully remove the halogen bulb **2** (22,8-24V/40W) from its socket, change and replace.
- Replace the disk bearer onto the bottom part of the lamp housing and rotate the quick-release fasteners **1** clockwise.

Do not touch the halogen bulb with naked hands!
Remove stains with a clean cloth and alcohol, since otherwise these can burn into the glass and lead to early failures.

Attention:

The halogen bulbs have a service life of approx. 1200 hours without any deterioration in their luminosity.

If after approx. six months of average use of 8 hours daily one of the halogen bulb should fail, we recommend that the whole set should be replaced.

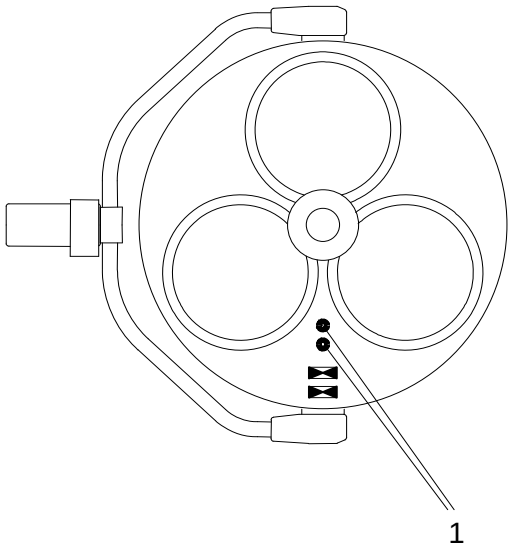
4.4.2 Changing the fuses

♦ **Ceiling /wall /stand model, emergency power lamp Power supply with 24V AC/DC**

In case of designs for power supply with 24V AC/DC the necessary fuses are provided by the customer.
Pay attention to the instructions from the local installer.

♦ **Ceiling /wall model Power supply with 230V/120V AC Built in toroid transformer**

The fuses in the lamp housing (designs with built in toroid transformer) prevent the transformer burning through in the event of a short circuit.



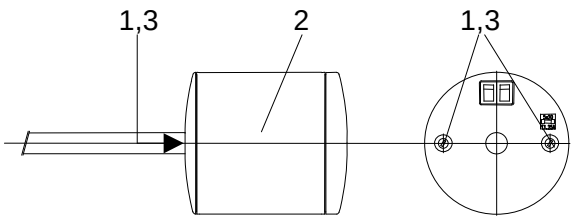
Visible type 5x20/1,25A/250V/T for 230V
Visible type 5x20/2,00A/250V/T for 120V

If the bulbs are no longer on, check the bulbs first, then the fuses.

- Turn off the lamp.
- Turn the black fuse holder **1** ¼ of a rotation anti-clockwise with a screwdriver.
- Change the fuses.
- Insert the fuse holder **1** under slight pressure and rotate in a clockwise direction (bayonet catch).

♦ **Stand model Power supply with 230V AC**

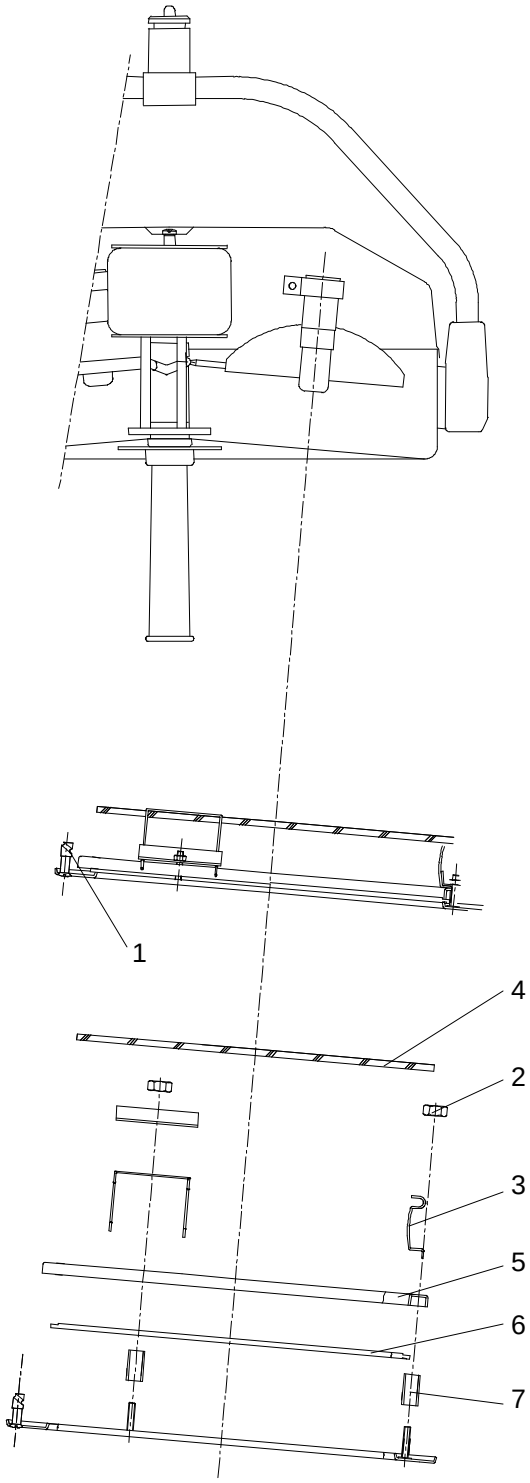
The fuses **1** are positioned in the counter balance **2** as shown in the figure.



Visible type 5x20/1,25A/250V/T for 230V

To change the fuses proceed as follows:

- Turn off the lamp.
- Turn the black fuse holder **3** ¼ of a rotation anti-clockwise with a screwdriver.
- Change the fuses.
- Insert the fuse holder **3** under slight pressure and rotate in a clockwise direction (bayonet catch).



4.4.3 Changing the filter disk

The dielectric filter disk between reflector and splinter protection disk prevents a damaging heating of the illuminated area.

The lamp may not be used without this filter.

- Turn off the lamp.
- Rotate the three quick-release fasteners **1** half a turn anticlockwise so that the corresponding disk bearer can be removed from the bottom part of the lamp housing.
- Slightly loosen nuts **2**, carefully bend the retaining springs **3** apart and change the filter disk **4**.
  Only use filter disks, which have been cleaned accordingly.

4.4.4 Changing the splinter protection disk

In case the light quality is getting worse because of a dull splinter protection disk, it may be necessary to change the disk.

- Turn off the lamp.
- Rotate the three quick-release fasteners **1** half a turn anticlockwise so that the corresponding disk bearer can be removed from the bottom part of the lamp housing.
- Remove the filter disk **4** as described at chapter 4.4.3.
- Loosen the three nuts **2**, remove retaining spring 3 and retaining ring **5**.
- Replace splinter protection disk **6** and lay stay tube **7**, retaining ring and retaining spring in the correct order on the disk bearer according to the illustration.
- Place nuts **2** onto the threaded bolts according to the illustration and tighten.
- Carefully bend the retaining springs apart and insert the filter disk.
  Only use splinter protection disks, which have been cleaned accordingly.

- Replace disk bearer and fasten by turning the three quick-release fasteners **1**.

5. Data

5.1 Technical data

Power supply with 24 Volt

~	Wechselstrom		alternating current
	Nennspannung	22,8V AC/DC	rated voltage
	Nennstrom	5,26A	rated current
Hz	Hertz-Frequenz	50/60Hz	frequency Hertz
	Sicherung		fuse
	Schutzgrad	Typ"B"	class of protection

Power supply with 230 Volt

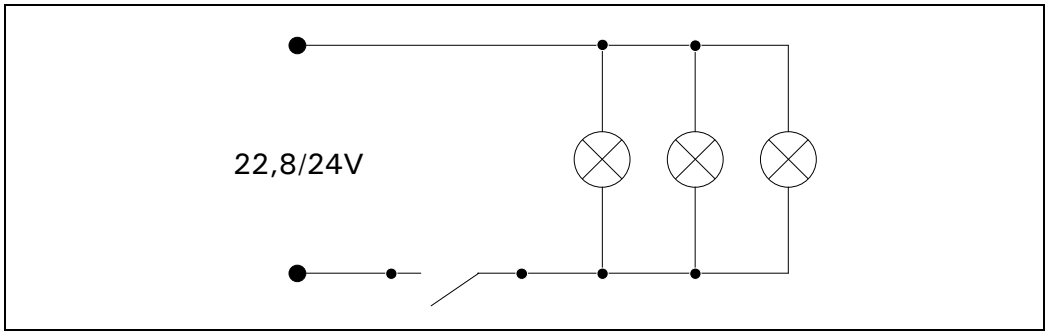
~	Wechselstrom		alternating current
Pr	Primaerseitig	230V / 0,52A	primary side
Sek	Sekundaerseitig	22,8V / 5,26A	secondary side
Hz	Hertz-Frequenz	50/60Hz	frequency Hertz
	Sicherung		fuse
	Schutzgrad	Typ"B"	class of protection

Power supply with 120 Volt

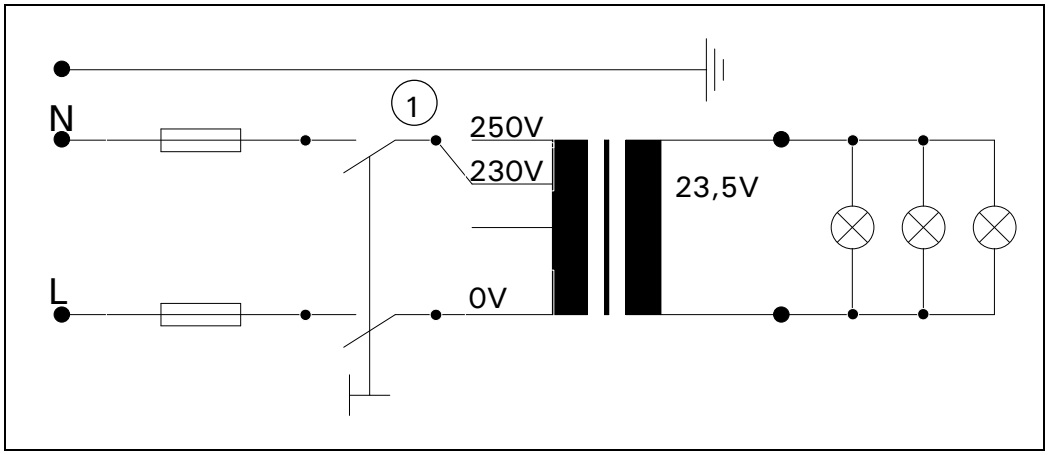
~	Wechselstrom		alternating current
Pr	Primaerseitig	120V / 1,0A	primary side
Sek	Sekundaerseitig	22,8V / 5,26A	secondary side
Hz	Hertz-Frequenz	50/60Hz	frequency Hertz
	Sicherung		fuse
	Schutzgrad	Typ"B"	class of protection

5.2 Wiring

Power supply with 24 Volt

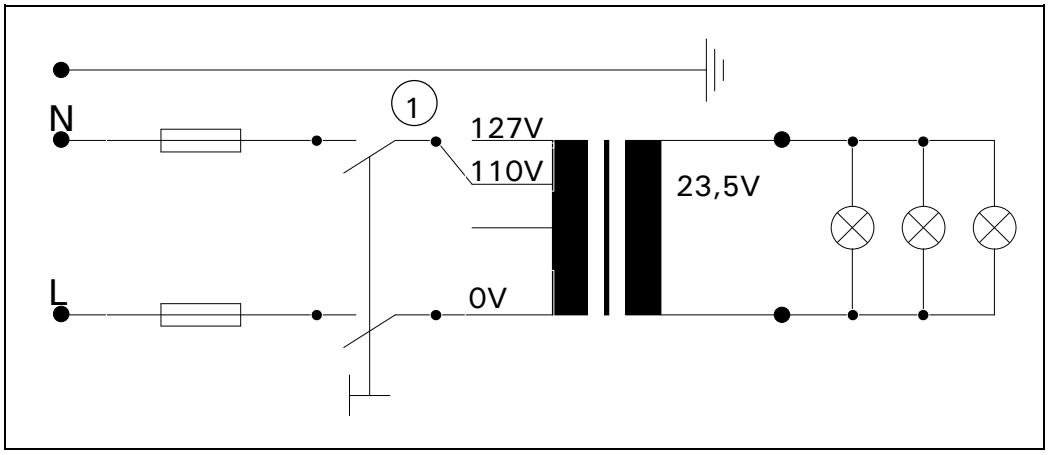


Power supply with 230 Volt



1 – two-step switch (lamps with built in transformer only)

Power supply with 120 Volt



1 – two-step switch (lamps with built in transformer only)

5.3 Environmental conditions

Operation

	Min.	Max.
Temperature	+10°C	+40°C
Relative atmospheric humidity	30%	75%
Air pressure	700 hPa	1060 hPa

Transport / Storage

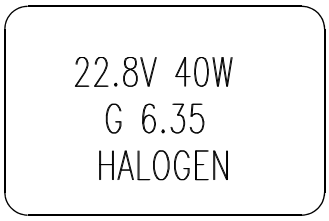
	Min.	Max.
Temperature	-10°C	+50°C
Relative atmospheric humidity	20%	90%
Air pressure	700 hPa	1060 hPa

6. Marking

Protective conductor

Switch ON/OFF

6.1 Specification of bulb



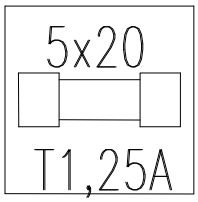
Voltage, power
Socket
Mode of operation

6.2 Specification of fuse

Power supply with 24 Volt

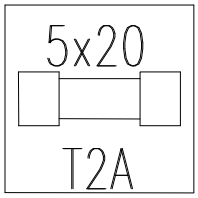
There are no fuses in the lamp housing

Power supply with 230 Volt



Visible fuse 5x20
Delay action 1,25A

Power supply with 120 Volt



Visible fuse 5x20
Delay action 2,00A

6.3 CE-mark

CE

The products Triaflex R86 comply to the standards 93/42/EEC for medical products of the European Community's Council.

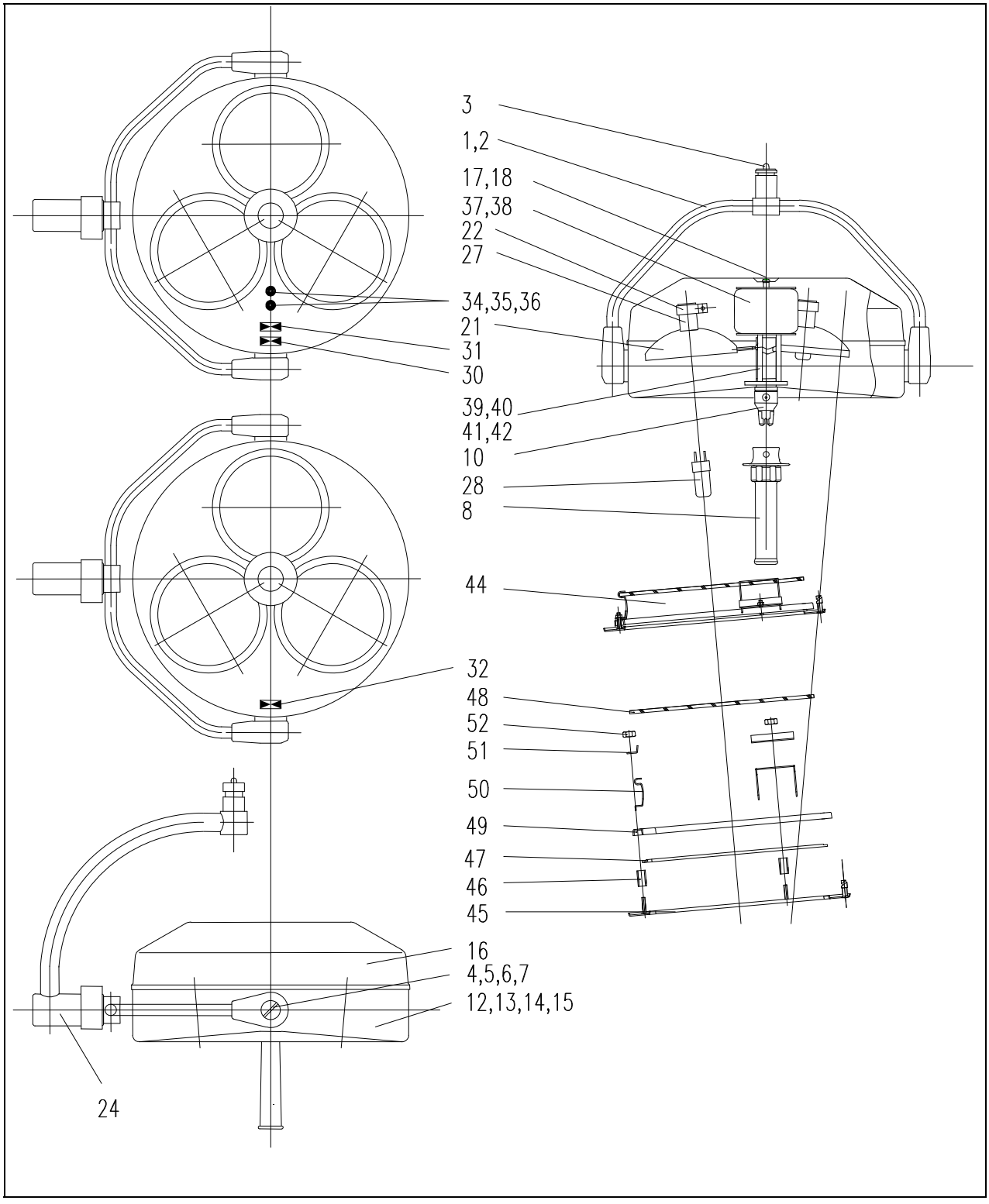
7. Disposal

The OT-lamp Triaflex R86 does not contain any danger goods.
The components of the OT-lamp should be properly disposed at the end of its shelf life.
Make sure, that the materials are separated accordingly.

- PC-boards should be submitted to an appropriate recycling.
- The rest of the components should be disposed according to the contained materials.

8. Spare parts

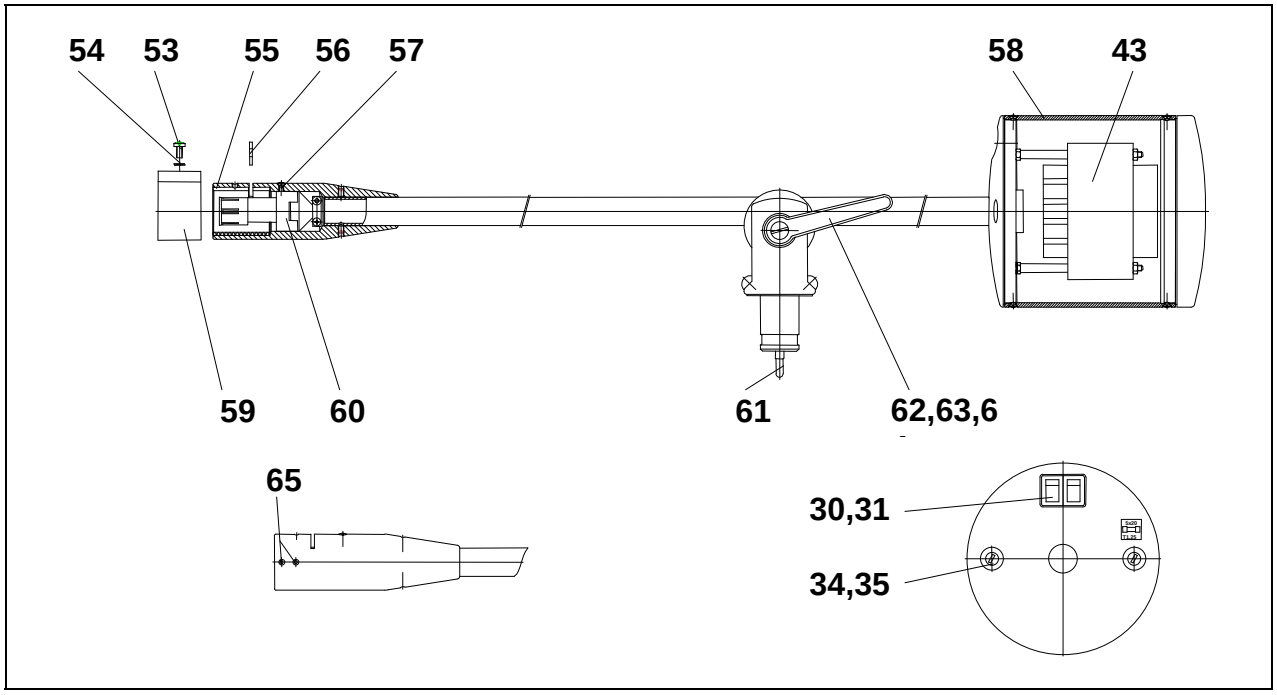
8.1 Lamp head (Ceiling- /wall- /stand model, emergency power lamp)



Remark:

The lamps Triaflex R86 with power supply for 24V do not have a built in transformer, do not have fuses in the lamp head and no change-over switch at the lamp head.
For spare parts see point 8.1

8.2 Swivel arm (stand model)



8.3 Spare part list

Item	Qty.	Name	EDVNO	Remarks
01	1	Lamp bow complete, standard	22100002	alternate
02	1	Lamp bow complete, 90° turned	22101002	alternate
03		Sliding contact (pin)	22102003	
04	2	Bolt	22080203	
05	2	Corrugated washer DIN 137 –A10 –FSt –Zn	65542002	
06	2	Pressure washer	07011204	
07	2	Hexagonal nut M10x1 DIN439	67900001	
08	1	Sterilisable handle sleeve	21150002	
09				
10	1	Handle coupling fix-focus	45080201	Plastic
10	1	Handle coupling	45080203	Aluminium
11				
12	1	Housing lower part for toroid transf. without focus	22012011	
13	1	Housing lower part for toroid transf. with focus	22012010	
14	1	Housing lower part for ext. transf. without focus	22012009	
15	1	Housing lower part for ext. transf. with focus	22012012	
16	1	Upper housing part	22011201	
17	1	Raised countersunk screw DIN 966 HM4x12 –4,8Ni	65112007	
18	1	Washer	22080206	
19				
20	3	Reflector unit complete	22060001	
21	3	Reflector	22060201	
22	3	Clip	74011003	
23				
24	1	Cardan bow, complete	22110001	special tool
25				
26				
27	3	Socket with cable length 140mm	67320005	
28	3	Halogen bulb 22,8V 40W	67100101	
29				
30	1	Two-pole illuminated ON/OFF switch	67340002	int. transformer
31	1	Change-over STRONG/WEAK	67340001	int. transformer
32	1	Single pole ON/OFF switch	67340004	ext. transformer
33				
34	2	Fuse holder	67370001	
35	2	Visible fuse 5x20 1,25A/250V/t	67370004	power supply 230V
36	2	Visible fuse 5x20 2,0A/250V/t	67370005	power supply 120V
37	1	Toroid transformer 130VA prim. 230V AC/ sec. 22/24V AC	22051001	
38	1	Toroid transformer 130VA prim. 120V AC/ sec. 22/24V AC	67010111	
39		Central-axle compl. for toroid transf. without focus	22050004	
40	1	Central-axle compl. for toroid transf. with focus	22050001	
41		Central-axle compl. for ext. transf. without focus	22050003	
42	1	Central-axle compl. for ext. transf. with focus	22050002	
43	1	Block transformer 120VA	67010202	Swivel arm
44	3	Disk bearer complete	22160002	
45	3	Disk bearer ring with quick-release fastener	22161001	
46	9	Stay tube	65702003	
47	3	Splinter protection disk	07200201	

Item	Qty.	Name	EDVNO	Remarks
48	3	Dielectric filter disk	07250201	
49	3	Retaining ring	07012202	
50	9	Retaining spring	23160201	
51				
52	9	Nut M3 DIN 934	65332002	
53	1	Raised head screw DIN 7985 HM4x10 –4,8Ni	65152010	
54	2	Lock washer A4,3 DIN 6797 –Zn	65582004	
55	1	Brake ring	53220206	
56	1	Semi-circular spring	74011001	
57	1	Countersunk screw DIN 966 HM3x12 –4,8Zn	65112009	
58	1	Housing	53220202	
59	1	Sliding sleeve	53070208	
60	1	Sliding contact (receptacle)	53223001	
61	1	Sliding contact (pin)	53222002	
62	1	Washer A8,4 DIN 125 –Zn	65512008	
63	2	Brake disk	53230202	
64	1	Adjusting lever	74503002	
65	4	Thread pin DIN 551 M4x14 14H	65212002	
66	1	Acrylic glass box for transformer 120VA		Not shown